

AMATEUR RADIO



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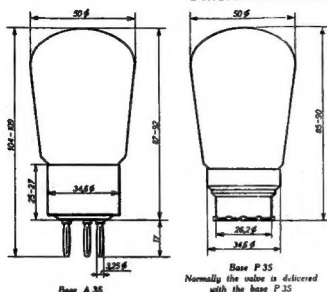
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WORLD'S LARGEST RADIO MANUFACTURERS

Now that we are recovering from the aftermath of Christmas our minds are turned to the all-important subject of Phone/CW Restriction on our bands. All W.I.A. members will be expressing their opinions within the next week or so, and after each Division has forwarded the result of its Divisional poll we will then eagerly await the result from Federal Headquarters. We might add "with trepidation" to the word "eagerly", for the consequences of this poll are very far-reaching, and concern not only our own members and our own society immediately, but also must have some reaction in other membership societies of the IARU, when this very controversial subject is brought up for discussion.

What a hateful word "Restriction" is, and what an equally hateful meaning it has! Speaking in a general sense, the best possible complexion that one can put on any restriction is that it is a less method of achieving an object, and the worst possible is that no restriction ever made could possibly bear on everyone's shoulders, an equal burden. Now, becoming more specific, a restriction of our bands, if they were a few thousand kilocycles wide and we had plenty of space to play with, would be an admirable solution of the difficulty. We could lope off 500 kilocycles or so and never miss it (at least, not very much). But to discuss devoting, for the exclusive use of Phone, definite areas of our totally inadequate bands is an example of rigorous extravagance that would take some beating.

To our minds a restriction such as is suggested is not only totally unnecessary to remedy the position; has not only proved a dismal failure wherever it has been tried, but will be a self-admission on our part, if we agree to it, that we have not the organising ability nor the commonsense to utilise our present bands to the best advantage. We must not lose sight of the fact that we have only about 800 odd active members in the whole of Australia, and thus drastic measures that may seem necessary on the other side of the world are quite unnecessary here.

We agree that some form of CONTROL is needed, but if the average CW man, who cries out for Phone abolition on his DX bands, surveys the position dispassionately, he will agree that it is not Phone that he is so perturbed about, but: 1.—BAD PHONE, in all its many forms. 2.—CANNED MUSIC. 3.—HIGH POWER Phone men working over the back fence, and 4.—In a lesser degree Interstate Phone QSO's during DX hours. With the Phone man who is genuinely trying to work DX, when that station is using good Phone, and is complying with the regulations, the CW man has no reasonable complaint. If he loses a DX contact through the interference of the Phone it is purely the luck of the game. His only argument that can carry any weight on this score is that even the best Phone occupies a wide channel compared to his CW signal. On the other hand, however, the Phone man can say, and rightly so, that he has as much right to seek that coveted WAC as the CW man.

But let us examine the enumerated items tabulated above. Here surely is the crux of the position, and it is perfectly obvious that a satisfactory control of them will lead to a clearing up of the whole position, with a minimum of inconvenience to all.

1. BAD PHONE.—There is absolutely no excuse for this, one of the worst features of the whole situation. Australian CW men hold pride of place in the world with the highest percentage of CC stations, and we are always endeavouring to make the standard still higher. On the other hand though, some men seem to think that they can couple a microphone into a circuit anywhere, and provided modulation of some form is achieved, well—that is good enough. A rigorous control of Phone quality is essential by our own vigilance officers. Our Phone men on the 200 metre band have set an enviable standard, our CW standard is very high also, so there should be no reason for the existence of the rubbish that passes under the name of Phone. Again, this is becoming increasingly important now that Dual-wave sets are becoming so popular with the BCL listeners, and even if some men don't care what they do to or what trouble they cause their fellow-amateurs, surely they will take some heed when they know that they are sullying the good name of Amateur Radio in the eyes of the BCL's.

2. CANNED MUSIC.—For sheer unadulterated selfishness there is nothing approaching this nuisance on our short wave bands. Nothing should be too severe for the station who plays record after record for long periods, often without even announcing. Not only is that man contravening the Spirit of Amateur Radio, but also he is breaking the regulations into the bargain. A station caught in the act should be dealt with very severely, and there should be no leniency for a first offence.

3. High Power Phone QSO's, often of hours duration, between stations a couple of miles apart, is another type of selfishness that makes every decent Ham's blood boil. Not only is such a QSO an example of selfishness, but it is also a serious reflection on the radio ability of the stations taking part. They have used the wrong band for their contact. If a man desires to carry out local tests on Phone or merely make a local QSO, he has at his disposal a band—five metres—that is perfect in every way. The gear required is ridiculously simple and cheap, antennae are small; in fact, there is not a single argument that can be brought forward why local Phone contacts should not be conducted on 5 and 2½ metres. The average nuisance for whose Phones we are compelled to suggest control will say there is no one on "5" with whom to work, but that argument will merely add "laziness" to the word "nuisance" we have already called him. If he cares to listen on "5" he would find the answer to his argument.

4.—Interstate Phone QSO is a matter that might well be left in the hands of the rank and file after an appeal to their sense of fair play. If a man lived up to the ideals of Amateur Radio he would not carry on Interstate Phone QSO during DX hours on a DX band.

Many suggested modifications of the original sweeping restriction have been put forward, such as "banning Phone altogether from 40 metres" or "making it permissible during certain hours", but all are little better than the original plan. We feel confident that no sensible minded amateur will consider the suggested restriction in either its original or modified form. As we said before, it is not only totally inadequate, but is totally unnecessary for the type of trouble experienced. However, if the suggested scheme does nothing more than bring a very controversial subject to a head out of which may come a successful scheme of Phone control, then it has achieved a great deal.

By far the best means of attack is an analysis of the trouble with a clear, unbiased mind, realising that the genuine Phone man has as much right to a place in the sun as the genuine CW man.

Why should we not make use of the Vigilance Officers already appointed by Federal Headquarters in a Federally controlled scheme whereby breaches of the regulations could be dealt with through a form of self-government, rather than through any type of Restriction?

If the ideal of Amateur Radio were followed in the spirit of everyone, no form of restriction or control would be necessary, and a suggestion we make earnestly to all divisions of the WIA is that they issue to every member a copy, suitably printed, of the "Amateur Code", that every member frame it, hang it on his shack wall beside his station license, and make a New Year resolution to abide by it in all his radio activities. That would be the panacea for all the ills we suffer.

Field Strength Measuring Equipment for the Amateur

The purpose of field strength measurements is to obtain an accurate picture or pattern of the actual values of the field surrounding an antenna. This picture should show the field adjacent to the antenna, which, of course, is the true pattern of the antenna, as well as the field at distances of from two to twenty miles away, which reveals the effects of buildings, hills, power lines, bodies of water, etc.

The equipment used has usually been a receiver of the superheterodyne type, operated with a small loop. A standard source of signal was required for calibration of the receiver and this together with the associated power supplies, made the outfit rather cumbersome. These outfits were capable of taking readings hundreds of miles from powerful stations, the distance usually being limited by the static or noise level, which obscured the signal or affected the accuracy of the reading. Considerable time and effort was required for each reading taken, and the progress was naturally slow.

Field strength measurements originally were taken at broadcast and lower frequencies. At first they consisted of a few measurements taken at random, usually, locations that seem favourable. Later, more consideration was given to the locations, and attempts to pick average locations were made. Next, the practice was to take readings at points about the compass, each located at the same distance from the antenna. This last procedure, while giving a reasonable picture of the field at distances, did not reveal the causes of distortion of the pattern. Finally, the practice was changed to that of taking readings at uniformly spaced distances, located along a straight line or radial, starting near the station and extending out as far as the equipment permitted or time allowed. These radials are run at about every 45 degrees at least until the antenna is encircled. This last procedure clearly indicates the effects of screening and the pattern obtained gives a true picture of the field, both close to the

antenna and at greater distances.

The amateur employs higher frequencies, which often skip at short distances. His power is limited to one kilowatt input. His antenna may radiate at angles well above the horizontal. His problem is therefore different from that of the broadcast station. He cannot afford to build a sensitive receiver for this purpose alone, and very few find it economical to purchase a standard signal generator. The antenna is located often in a confined space, surrounded by obstructions that may cause distortion in the field pattern. In general he must confine his measurements to distances less than a mile. He, therefore, requires an outfit of fair sensitivity, light weight, and above all, it must be self calibrating.

The self calibrating feature requires the set to be based on some sort of voltmeter. The sensitivity requirement together with the fact that the power available from the radio field is very low, limits this voltmeter to one of the vacuum tube type. The light weight requirement can be met by use of a small "B" battery and flash light cells for the "A" battery. The antenna used would naturally be a loop for frequencies from 1.5 megacycles to 28 megacycles, and a doublet for higher frequencies. Since the measurements would start at a point only a few wave lengths from the antenna, the voltmeter should be capable of measuring voltages up to several volts. The "slide back" type of vacuum tube voltmeter described in this folder meets these requirements. The "slide back" vacuum tube voltmeter is used in conjunction with a loop for most amateur frequencies and with a doublet for the frequencies of 56 m.c. or higher. The determination of the loop constants or the "step up" ratio of the loop, is taken care of in a novel but convenient manner. This will be treated later.

Construction of Loops and Doublets.

In order to eliminate the "antenna" effect that is usually experienced when

loops are employed, the loop is "centre tapped" or divided into two symmetrical halves. This balance is carried out even in the calibrating resistors included with the voltmeter. The voltmeter itself is "balanced."

Fig. 1 shows the construction of a loop. It is made of hardwood, preferably maple, the supports forming the diagonals of the loop. Maple dowling can be obtained most any place. The centre block is drilled to fit the ends of the dowling. The two side pieces and the bottom piece are fastened by screws or bolts, the top section being free to slide. The small coil spring placed in the centre of the

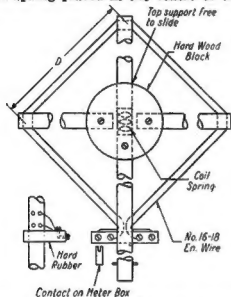


Fig. 1.—Construction of Loop for Use with Field Strength Measurement Set.

block will keep the wires under tension and prevent their vibration when readings are being taken. The terminal block is mounted on the bottom section which also serves to fasten the loop to the case containing the voltmeter. This is effected by a bayonet type of mounting.

Suggested dimensions of loops.

200 to 100 metres	4 turns	1 metre square
150 to 50 metres	2 turns	1 metre square
100 to 15 metres	1 turn	1 metre square
100 to 8 metres	2 turns	$\frac{1}{2}$ metre square

With a tuning capacity of 50 to 100 m.m.f. these loops will have almost a 50 per cent. overlap. This allows the amateur to choose the loop that gives him the best results for the particular frequency to be measured.

At frequencies above 28 megacycles, it is customary to use a half-wave Hertz or doublet antenna. This does not adapt itself for use as readily as

the loop. Fig. 2 shows the construction of such a doublet. The doublet is partially tuned by its telescoping ends and partly by the tuning condenser in the box. It is supported in a horizontal position above the box or

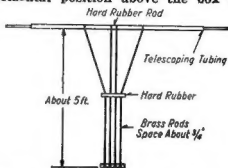


Fig. 2.—Loop for Use on Frequencies Greater Than 28 m.c.

in a vertical position to the rear of the box. The brass rods that comprise the transmission line and grounds, serve as supports and if arranged so as to form a square, will be quite rigid. These doublets are rather cumbersome and it is recommended that small loops be used except on the higher frequencies. Their dimensions are best determined by the individual using the set. Their mounting is rather difficult and is left to the amateur. If used on only one frequency, they can be calculated and made to operate quite satisfactorily. It is possible to construct them without two ground rods, but this will not allow the complete use of the method of determining their constants. However, it will allow the amateur to obtain satisfactory results even though they are not absolutely precise.

The Vacuum Tube Voltmeter

Fig. 3 shows a circuit which may be employed.

This circuit is covered by a Westinghouse Electric and Manufacturing Co. patent application and no license is to be implied to use it with electrical instruments other than Westinghouse. The Westinghouse Company has no knowledge that patents owned by others are not infringed by the use of this arrangement.

The vacuum tube voltmeter part of the set employs two 864 type tubes, selected so that their characteristics are as nearly identical as possible. The grid circuit is push-pull so as to preserve the balanced effect necessary in eliminating the antenna effect of the loop. The plates are in parallel and

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both are in series with a high resistance microammeter. This constitutes the indicating part of the set. Paralleling the tubes helps the impedance match.

The voltmeter is used with a variable grid bias so as to give fixed plate current, the bias voltage being read. This places a very light drain on the plate battery and keeps the power drawn from the loop at a minimum. The range of the set is from one volt per metre down to about twenty millivolts. Figs. 4 and 5 are curves giving

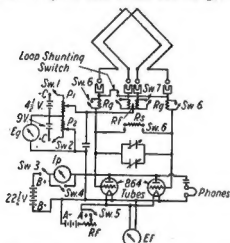


Fig. 3.—Circuit of Field Strength Set.

corrected values of the voltage across the loop with reference to grid bias. Their use is given under "Operation of the Set."

The box with associated batteries, etc., rests on a tripod. The tripod may be home made or of the wooden camera type. The box with the attached loop may be rotated, thus eliminating all flexible connections and always keeping the observer in the same position with reference to the loop while readings are being taken.

Fig. 6 shows a suggested layout. The panel should be made of Micarta or some similar material, about 12 inches square. The instruments, potentiometers, rheostat and battery or instrument switches, should be grouped on the front half of the panel. The tubes, loop-shorting switch, and the switches controlling the calibrating resistances, should be grouped on the back half of the panel. This keeps the R.F. part of the set separate from the measuring part. It is suggested that the tuning condenser be mounted below the panel, directly under the calibrating switches and terminal block. Its shaft may be extended to

a dial located on the front of the box containing the set. The batteries being small, they may be contained in the bottom of the box, directly under the instruments and potentiometers. All leads in the R.F. part of the set should be as short as possible. The two series resistors (R_g) and the shunt resistors (R_s) are mounted on one switch and the series resistors (R_f) are mounted on the other switch. These switches are of the anti-capacity type. All the battery and instrument switches are of the rotating telephone key type. The loop shorting switch is the same type used with the instruments. All the series resistors (R_g) and (R_f) are of the same value, 0.8 ohms. They are made of small resistance wire and are about $\frac{1}{2}$ inch long. The shunt resistor (R_s) is of the grid leak type and has a value of 100,000 ohms. These values must be determined within 1 per cent or closer if possible.

The box containing the set may be made of wood or of aluminum. The loop may be conveniently mounted at the rear of the box in a bayonet type of mounting.

Operation of the Set.

Select the proper range loop. Insert loop. See that all battery switches are open and the microammeter shorted. Light the filaments and bring them to their proper temperature as indicated by a filament voltmeter. Close switch controlling the bias batteries. Close the loop-shorting switch. Adjust (P_2) so bias voltmeter indicates zero voltage. Set (P_1) so bias from this section of battery is maximum. Now close plate battery switch and remove short from microammeter. No plate current will be flowing. Adjust (P_1) until plate current is TEN microamps. Remove short from loop and carefully tune in signal. Care should be taken that loop is not tuned when short is removed as excessive plate current may damage the instrument. As signal is tuned in, adjust (P_2) so plate current is kept at TEN microamps. When loop is tuned to resonance, swing the set about until the maximum position has been reached, taking care of the increasing plate current with (P_2). The set is now ready for operation. Note the bias voltage as indicated by the bias voltmeter. Call this reading (V). Now place series resistors adjacent to the centre of the loop in the circuit by means of

the anti-capacity switch (R). Reduce the bias voltage by means of (P2) until the plate current is again ten microamps, and note the bias voltage. Call this reading (Vf). Increase bias voltage, remove the series resistors and then insert series resistors adjacent to grids of tubes. Adjust bias voltage until plate current reads ten microamps and note reading. Call this reading (Vg). Increase bias, remove series resistors, insert shunt resistor by means of its switch and again adjust bias so plate current is ten microamps. Note bias voltage and call this reading (Vs).

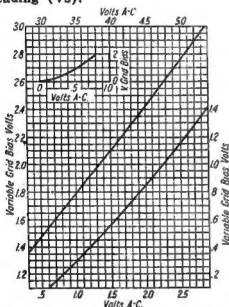


Fig. 4.—Conversion Chart for the Lower Values of Grid Bias.

These four readings should be noted together with the location data. These comprise all the information needed and can be worked out later at the amateur's convenience. When the amateur becomes familiar with his equipment, these readings can be taken in a minute or less and the transmitter need not be left on over long periods of time. By allowing about ten minutes between each transmission there will be ample time to move from one predetermined location to another and set the equipment up in readiness for the next transmission.

After a series of locations have been covered, the amateur should compile the data taken into the final form. Each reading taken is referred to the proper chart Figs. 4 and 5 and the correct value of voltage taken. After this is done, these values are substituted in the formula below and the gain or step-up of the loop, determined

for that location. If it is desired for convenience these conversion charts may be drawn to a larger scale on cross section paper.

$$\text{Gain} = p = \sqrt{\left(\frac{V - V_s}{V_f}\right)^2 \frac{1}{R^2 S} \left[\sqrt{\frac{V - V_f}{V_f}} + \sqrt{\frac{V - V_g}{V_g}} \right]}$$

V_f = Corrected Voltage without series or shunt resistor.

V_s = Corrected Voltage with shunt resistor across loop.

V_f = Corrected Voltage with series resistors in filament ends of loop.

V_g = Corrected Voltage with series resistors in grid ends of loop.

R = Value of series resistors = $2 \times .8 \text{ ohms} = 1.6 \text{ ohms}$

S = Value of Shunt Resistor = 100,000 ohms

p = Step-up or gain of loop.

Since $p = \frac{V}{E}$ where V = corrected voltage across loop without series or shunt resistors

E = field strength in Micro-volts per meter.

therefore

$$E = \frac{V}{p}$$

the actual field strength of the signal at the location is given.

The formula may seem rather complicated, but if the results are tabu-

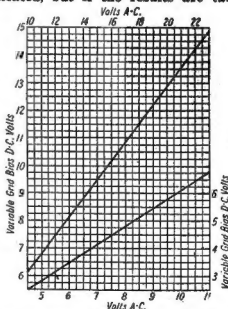


Fig. 5.—Conversion Chart for the Higher Values of Grid Bias.

lated as indicated on the next page, the calculations become quite simple.

The tabulations can be extended to include each step in the calculations.

Fig. 8 shows a typical field pattern obtained when this set was used for

measurements about a two-antenna bi-directional array.

General Suggestions.

The amateur should proceed with all operations carefully until he is acquainted with the set, and then he can speed up his measurements.

Always make sure all battery switches are open and the microammeter shorted before dismantling the set.

Choose locations for readings reasonably free from obstructions such as power lines, fences, etc. The proximity at which such obstructions interfere depends upon the frequency of the signal being measured.

Usually there seems to be a definite relation between the values of V , V_s , V_f and V_g and any sudden change in this relation is generally caused by some interfering obstruction which reflects on the efficiency of the loop.

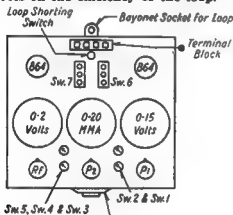


Fig. 6.—Panel Layout.

Harmonics of reasonable magnitude may be measured at points close to the transmitter.

For the amateur who is interested only in the field pattern and not in the actual values of field strength, it is

Location	V	V_f	V_g	V_s	V_f/V_s	V_g/V_s	V_f/V_g	V_f/V_g	V_f/V_g

Fig. 7.—Suggested Form of Tabulating Readings.

suggested that he take only the (V) reading. This reading will give him a very good idea of the comparative values of the field. He might even construct his set without the calibrating resistors and the associated switches.

For the amateur who is interested in a technical discussion of this set, an excellent article has been published in the February, 1934, issue of the Proceedings of the Institute of Radio Engineers.

Instruments Recommended.

Rating	Type MX Style No.	Type NX Style No.
Microammeters		
0-20	820159	820233
Filament Voltmetre		
0-20	821584	821620
Variable Bias Voltmetre		
0-15	821592	821623
Tubes Used	2	864 type
Plate Voltage	22½ volts	
Initial Bias	0-4½ volts	
Variable Grid Bias	0-13½ volts	

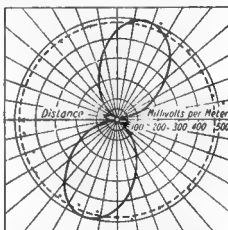


Fig. 8.—Field Plot Made from Measurements with the Set Described. X Marks Show Where Readings Were Taken.

Notes and News from U.S.A.

A NEW RADIO TRANSMISSION PHENOMENON!

Dr. J. H. Dellinger, Chief, Radio Section, National Bureau of Standards, has noticed a new periodic variation in radio transmission of the most remarkable character, a "drop-out" of all radio signals on high frequencies for several minutes which apparently occurs regularly at intervals of about 54 days (twice the period of rotation of the sun).

This complete fading out of signals was noted over the illuminated half of the globe (not the night side) on the dates of March 20, May 12, July 6 and August 30, and is predicted by Dr.

Dellinger as likely to occur again between October 21 and October 25. It is believed to depend on some emanation from the sun, calling for study and correlation of data on other manifestations. The complete fade-out and return of signals usually requires 15 minutes or more.

On May 12, the receiving station near Paris reported all high-frequency reception disrupted suddenly at 1157 GMT, signals returning slowly to normal at about 1215 GMT. R.C.A.C. and A.T. and T. receiving stations in this country confirmed observation of the phenomena, and watched for its repetition August 28-30. It turned up on schedule August 30, 2320-2335 GMT. Other fade-outs of record occurred on March 20 at 0150-0205 GMT, and on July 6 at 1409-1425 GMT.

The first reported instance in A.R.-R.L.'s files, received from F. D. Jenkins, W4SB, of Atlanta, Georgia, under date of November 28, 1934. Mr. Jenkins reported that on this date at 1110 a.m. CST signals at the Eastern Air Lines Aeronautical Station, WEEA, dropped completely out (while receiving a message from WEEG) on 4745 and 4122 kcs. The fade out was observed over the entire airways communication system; During the dead period W4SB tuned over both 80 and 40 metre amateur bands, but not a single signal was logged! Broadcast band frequencies, however, were "normal," WLW and locals being received in Atlanta. At 1140 a.m. CST h.f. reception again became normal.

Observations and Reports Requested of A.R.R. Members.

Although it cannot be foretold in what part of the world it will appear, it is expected to affect "daylight" high frequency communication in unmistakable fashion whenever it occurs. "All amateurs are requested to observe carefully, making observations as continuous as practicable and reporting the exact period of any drop-out noticed as well as the time signals return, and any other phenomena. A postal card report or a letter with further evidence on this subject will be greatly appreciated and such information will enable us to assist Dr. Dellinger and the Bureau of Standards in identifying this effect. If possible, examination of logs for data on occurrences at the previous dates and times given, should also be made."

Cairo Survey Activities.

In addition to the work of individual observers, several major "area" or co-ordinated surveys, covering full 24-hour periods will be made under the supervision of club leaders or others. The honor of being first to actually start organized survey activities in such a group goes to S. C. M. Gordon, WIHRC of Providence, R.I.

The R.I. group has observers lined up for a continuous 24-hour survey to be made at six-day intervals over the next 13 weeks. A group of eight amateurs handles the 24-hour watch in three-hour shifts, working Sunday one week, Saturday, Friday, Thursday, etc., on successive weeks. Information from Brad. Martin, WSQV, indicates that a group for the Philadelphia vicinity will shortly be working on the survey likewise. W9KJY and W9HPG have been visiting clubs and endeavoring to line up a group in the Chicago area. It is believed that the Federation of Radio Clubs will arrange a group area control in the south-western and Pacific areas. Bill Miller, W7AAN, in Spokane, Washington, is a real worker, and a once-per-week survey is already being instituted there, which he will correlate as to dates with similar plans for Seattle and Portland.

In analysing all the logs thus far received we find many gaps to be filled. More observers are needed. Most particularly, observers to cover the 4-4 1/2 m.c. region are wanted. Of all the reports received but a small fraction of the observers have covered this important territory. Since many O.R.S. and O.P.S. are users of the 80 metre band, it is entirely appropriate that we focus attention on this deficiency in this bulletin, and ask if some of you fellows will not help us out. Both 6-8 m.c. and 4-4 1/2 m.c. observations are needed in greater volume. Blanks and information are freely available from Headquarters. A postal card will bring you the necessary survey information and materials.

Flash! New A.R.R.L.-Cairo Committee Pin Available.

The League's Cairo Committee (W8CMP, W1KH, W8HC) announce the availability of a new A.R.R.L. button for workers in the cause of amateur radio in the Cairo Preparatory Surveys (4-4.5 and 6-8 m.c.)

(Continued on page 26)

The Type 53 as an Harmonic Oscillator

By R. ANDERSON, VK3WY.

During the past couple of years the tendency has been to endeavour to cut down the number of stages necessary in a crystal controlled transmitter that is to work on the higher frequency bands. In other words, the tendency is to simplify the gear and increase the efficiency of the transmitter as a whole.

In order to cut down the number of stages necessary when working on 14 m.c. or 28 m.c. it is necessary to (a) use a crystal with a higher fundamental frequency than the usually used, 3.5 m.c. crystal; (b) quadruple frequency in the frequency multiplying stage instead of doubling; or (c) multiply frequency in the crystal oscillator stage.

Several methods of quadrupling frequency in the single stage has been commonly used, notably the use of regeneration or the use of the Tritet principle in the frequency multiplying stage. The chief drawback with the ordinary tubes used, however, is lack of output to drive the following power amplifier stage.

One of the first methods tried for multiplying frequency in the C.O. stage was by inserting a second harmonic tank circuit in series with the normal fundamental tank circuit and driving the following stage from the

second harmonic tank. Again lack of output was the main trouble, and personal experience of the method was that it was inclined to be very unstable.

Shortly after this the Tritet circuit was developed, and this has become very popular. Although it is a big improvement over previous methods tried, it has a disadvantage, in that it is sometimes rather hard on the crystal, particularly when the usual receiving type of penthode tube is used, the internal screening effect in these tubes not being too good. On this account the power output from a Tritet is usually limited to about 3 watts on the second harmonic, the fourth harmonic output being only a small fraction of this, usually not more than about 0.5 watts. These figures may be better when a tube such as the type 802 is used.

A new type oscillator has lately been developed which will give far more output than a Tritet at equivalent voltages, and at the same time puts less strain on the crystal. There is thus not only less chance of puncturing the crystal, but the crystal frequency will also be more constant owing to the reduced temperature change of the crystal. This oscillator



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Newcastle, N.S.W.

uses a type 53 tube. The circuit is shown in Figure 1.

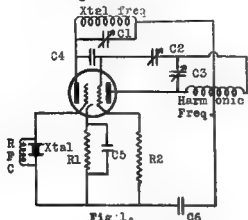


Fig 1.

C1 .0001 mfd	C5 .01 mfd
C2 15 mmfd	C6 .01 mfd
C3 .0001 mfd	R1 400 ohms
C4 .00005 mfd	R2 50,000 ohms

The type 53 tube really consists of two high mu. triodes in the one envelope, one cathode being common to both the triodes. The first triode is used as the crystal oscillator, which is capacitively coupled to the second triode, which is used as a highly biased frequency multiplier. The first triode, i.e., the oscillator portion, has a high mu and low interelectrode capacities, and therefore, like the majority of high mu tubes, makes an excellent crystal oscillator. Its chief advantage is that it only requires a small amount of grid drive, and this means low RF current through the crystal. As the RF through the crystal is low, the power input, and consequently output, may be raised proportionately. At 400 volts about 5 watts output may be had for driving the frequency multiplying portion. The second triode portion of the tube is also high mu, and has a high mutual conductance. As it has a high drive from the crystal oscillator, and as the high resistance in its grid circuit gives it a high bias, it generates harmonics very freely. The fact that the leads between C.O. and multiplier are extremely short helps to make the efficiency very high.

When first trying this type of oscillator it was tested against a Tritet using a Mazda AC/PEN type tube. This tube incidentally had previously been found to act far better as a Tritet oscillator than the more popular type 59. While testing the two circuits the plate voltage was kept constant at 400 volts, and the

screen voltage for the Tritet was 125 volts. The power inputs to the tubes were measured, and the power output was measured by coupling a tuned circuit to the output, and across this circuit placing a thermocouple milliammeter in series with a 1000 ohm carbon resistor. The same 3.5 MC crystal was used in both circuits, and the outputs were first measured at the second harmonic. The Tritet had a combined screen and plate current of 36 ma, i.e., an input of 14.4 watts. Its measured output at 7MC was 2.6 watts, while the RF current through the crystal was 75 mls. With the type 53, the combined plate current was read by means of a milliammeter in series with the cathode; this current was 66 mls, i.e., a total input of 26.4 watts. The measured output on 7MC was .64 watts, with a crystal current of only 45 mls RF. It will be seen that, although the output from the 53 is more than twice the output from the Tritet, the Tritet has an input of only a little more than half that of the 53, so that there is not such a great difference in the overall tube efficiencies when used to double the crystal frequency.

The two circuits were then tried with their outputs on the fourth harmonic of the crystal. In the case of the 53, a small amount of regeneration was used by means of the 15 mmfd. condenser between the grid and plate of the second triode. The Tritet had an input of 16.2 watts, a crystal current of 78 mls RF, and the output was only 0.2 watts. With the type 53 the input was 25.8 watts, the crystal current was 48 mls RF, and the output was 3.6 watts. This showed the type 53, when using slight regeneration, to give far better output than the Tritet, and also to be many times more efficient when used for quadrupling the crystal frequency. Quite a fair output was obtained from the 53 oscillator at the 8th harmonic, but this was not measured.

When tuning up the type 53 oscillator, it will be found that the cathode current is only about 15 to 20 mls when the tube is not oscillating. As soon as oscillation starts, however, this current jumps to about 70 mls. The doubler tank is then tuned to resonance, and the current dips to about 55 mls. It will be found when tuning the oscillator tank circuit that the tube draws lowest current when the tank condenser is at the maximum

capacity at which the tube will continue to oscillate. Fortunately, this point is also the point at which maximum output is obtained.

When first building up the circuit a small 50 mmfd. variable condenser was used to couple the doubler portion of the tube to the oscillator, the idea being to vary the coupling so as to give the lightest load to the oscillator that would give efficient operation of the doubler. This did not work out too well in practice, as it was found that the oscillator not only worked best at a fairly heavy load, but that the RF current through the crystal went up considerably as the load on the oscillator was decreased. A 50 mmfd. fixed mica condenser seems to be just about right.

Regarding the use of regeneration, this does not seem to be of much advantage when doubling frequency, as it was found to only give very slightly more second harmonic output than when regeneration was not used. It did have the effect of lowering the doubler plate current, however, and so is worth while, as the main problem in the use of this tube is to keep the cathode current reasonably low. When quadrupling frequency, the results of the tests given above show regeneration to be of distinct value in bumping up the output. The regeneration is not difficult to control, and should be set so that the tube will not oscillate when the crystal is removed from the holder.

It will be noticed that no grid leak is used in the oscillator section, the total bias for this section being obtained from the cathode resistor. A grid leak was tried across the crystal, but in spite of the fact that it was a non-inductive carbon type, trouble was experienced with high RF current through the crystal. Finally this grid leak was cut out altogether, and a path for D.C. current across the crystal was provided by a RFC. This choke should be an efficient one, as a poor choke in this position cut down the output very considerably.

When arranging the layout for the oscillator some thought should be given to ventilation, for the tube as a glass bulb becomes surprisingly hot while the tube is in operation. One more precaution is to make sure that the tube gets its full 2.5 volts across the heater. When first trying the tube, fairly good output was obtained

from the oscillator portion of the tube, but the doubler output was very disappointing. The trouble in this case was traced to the voltage across the heater being only 2.2 volts. Best results were obtained by running the heater at very slightly more than 2.5 volts, and this will probably not affect the life of the tube as much as low heater voltage would.

Although the 6A6 type tube has not been tried here, its characteristics are practically the same as the 53, and in consequence it should give similar results.

The Magazine Committee desires to express its thanks to all contributors of articles, notes, etc., for "Amateur Radio."

We are only too intimately aware of the care and attention regular contributions demand, and our thanks are, therefore the more sincere.

EDITOR.

Why the alarm got Alarmed

(On QTR 6300, October 6th.)

Peacefully slumbers the ham in his bliss,
He's dreaming a YL had blown him a kiss:
Oblivious, it's obvious, to things like alarms,
He's a victim, it's sure, to the young ladies' charms.
"Wot the blankety blank's that blankety row!"
Yells the ham, showing symptoms of life,
As an R40 sig. from the clock by his bed
Ends the hopes of his winning a wife.
He lets go a heet, but he misses his mark:
How ead anyone hit the dam thing in the dark?
'Es angrilly scrambling out of his bed
He knocks his big toe. I won't say wot he sed.
He commences a tour in a search for the switch,
Put his foot into sumthing—it feels like a ditch.
'Es warily creeping around the far wall,
He trips on the mat es its mity the fall.
Wid a howl like a blooper he turns on the lite.
And the clock QRT's in a terrible frite;
As "Yer so and so lid!" he roars loud,
by het up,
"Eight-thirty ack emma's the time I get up.
"Wot's the idea of 'mitting at 300 hours?"
(The clock pales a shade, 'es perceptibly cowers.)
"Fer a dud fool I'd kick u rite over ml ants—
"The DX contest!" He springs fer his pants.
(Wid apologies to the masters.)

28 and 56 M.C. Section

(Conducted by VK3JJ.)

Contacts with DX stations on the 28 m.c. band appear to be getting easier with each burst of good conditions, and during the last three months of the year it was possible to hear numerous American signals practically every morning between 7 and 10 a.m. East Coast W's were very consistent during the peak in November, and W1AVV, W1LZ, W2TP, W4CBY, W5QL, W8CRA and others often reached R7. W0ZH took the place of W6VQ for the strongest DX station, and his 'phone often came through at K0. This just goes to show what a kilowatt and beam antenna can do for one's signals! W6JJU, W6DIO, W6JN, W6EWC, W6KEV, W6KRI, W7BPJ and W7AMX all seem very consistent and usually have stronger signals than the majority.

The Europeans were not nearly as consistent as the W's, particularly in the Southern States, but VK4BB, VK4EI, VK4AP and VK4GK have had many QSO's with stations in several countries. VK2LZ, VK2HY and VK6SA have also worked a number of Europeans, but the latter missed a large number of contacts due to his receiver not being quite sensitive enough. He has also come to the conclusion that something better than the old regenerative detector receivers are needed on 28 m.c., and has commenced to build a super-het.

Although VK3BD worked three or four G's and D during October, it was not until the last week in November that many Europeans became audible in Victoria. During the two weeks that followed, 3BQ and 3BD had many contacts with them, and on one evening the latter worked nine G's! VK3YP was getting out better to the east and only worked one G, but he realised his ambition to have 150 28 m.c. DX contacts in a month. They were mostly with W's, and twice he worked all districts on the one morning. On November 20th at 7 p.m. he heard LU1EP calling VK4AI, but as the latter never replied, 3YP called LU1EP, but is not sure if he raised him on account of QRM.

VK6SA had confirmation from ZS1H for their contact in September, which ZS1H claims as the first VK-Africa QSO on ten m.x. 4BB, followed by 4AP, made the first Eastern States QSO with Africa by working ZS1H on October 20th. 2LZ, 2HY and 3BQ have been in contact with F48IH or F48CR, so that makes 2LZ, 2HY, 3BQ, 4BB, 4AP and 6SA with five continents to their credit, and all waiting for South America for WAC. VK4BB has worked VE4OB, which makes him the first WBE on 28 m.c. in VK. Congratulations, OM! He is using an 800 tube as the final doubler now, and has found that a beam antenna similar to that used recently by 3BD increases signals by 2 or 3 points. 4BB is concentrating more on 'phone QSO's now, and has had several excellent two-way contacts with Yanks.

VK3UW and VK3CP are new to 28 m.c., but they both made a good start by working U.S.A. The former is using a pair of

4's as the final neutralised doubler stage, which is coupled to a vertical 87 foot Hertz antenna, 84 feet high at the top. 3MR, 3NM, 3OC, 3HK and 3JJ have all worked a few W's and J's, but have not yet had any luck with Europe. J2IS has taken the place of J2HJ for the most consistent J station, and he is using a pair of 300's in push pull in the final stage.

W6RH reports bearing the following VK's on 28 m.c. (via 8YP): 2EP, 2LZ, 2HZ, 2FN, 2EL, 3YP, 3BQ, 3BD, 3EG, 3MR, 4AP, 4EI, 4BB, 4GK, 5SU, 5HG and 6SA.

Europeans who have had many VK contacts include F8VS, ON4AU, G6LK, G2YL, G6WY, D4ARR, G5FV, G2HG, G5WF, ON4JB, ON4AC, G6DH, D4KPJ, G6NF, G2PL, OH7NC, YM4ZO and R18B.

It is with regret we learn that VK2YC has resigned as representative of the N.S.W. 28 m.c. group owing to pressure of work and other W.I.A. activities. Jim has done much to make the 28 m.c. band popular, and his efforts have induced many well-known DX stations to try it out. VK2BX has taken his place, so VK2UH enthusiasts should in future keep in touch with him.

NEW SOUTH WALES NOTES.

Conditions on 28 m.c. during December have fallen off a lot for extreme DX, but are improving for shorter distances. W's can still be worked from 7 a.m. to about 10.30 a.m., and J's about the same time, then interstate signals come through during the midday hour and also around sunset at times. The Europeans have become very scarce, and when they do come in are hard to raise. Best time seems between 6 and 7 p.m. No South Americans can be heard at present, but the W's can be heard working them. The best times for them would probably be early morning or late afternoon. I think the mornings would be better, but commercial harmonic TDC is often heard at sunset, his signals no doubt coming the long way round at that time.

VK2YC is back on the air at his new QRA, and now has a TBO4/10 in the final doubling to ten. The antenna is a 7 m.c. Zepp, supported by a 50-foot pole. A new 28 m.c. station put in an appearance with a nice C.C. signal just on the HF side of 2LZ. It turned out to be VK2EO, who pinches most of the 14 m.c. DX in Sydney. If he gets out as well on 28 m.c. he should cause 2LZ a lot of trouble. H1! 2EO is using an 830B in the final and a half wave doubler antenna with twisted VIR feeders.

VK2LZ put 'phone over to G6LK one evening, and then to do something different went up to 80 m.x. and worked several G's and other Europeans around 5 a.m. VK2PN at Tumut has at last managed to get over on 28 m.c. and is working W's fairly easily. He has a pair of 800's in the final of a C.C. rig and small beam antenna. 2DQ will also be on ten in the near future, and would like the gang to keep a lookout for his signals.

(Continued on page 28)

B.E.R.U. Notes

Correspondence

SPECIAL CONTEST INFORMATION.

R.S.G.B.—Special VK-G 3.5 m.c. Test.—January 18th to 19th, 25th to 26th, 1900-2000 G.M.T.

R.S.G.B.—28 m.c. Test.—January 1st, 1936, to January 1st, 1937. Rules as before, Rule 6 omitted.

R.S.G.B.—Annual B.E.R.U. Trophy.—Junior and Senior, February, 1936.

Herewith brief notes ref. 80 m.x. by VK3EG:—

During the R.S.G.B. 3.5 m.c. contest and since then the conditions on 80 m.x. have been surprising.

At 1900 G.M.T. conditions peak and all European countries are coming through at good strength.

The following G's have been heard:—G6RY (R7), G6NJ, G5YE, G6WY, also F8SX, SP2BQ, PA0CO, QZ7WP, D4AGG, ON4AC, all at good strength and easily readable.

Several VK stations have contacted G's on this band, and a test has been now arranged for January.

Other countries audible are BI, OK, OH, SM, U and J.

R.S.G.B. MONTHLY NOTES.

By G6WY.

(By Radio via VK3EG.)

1. Recent 28 m.c. achievements which have been credited to a group of British amateurs have stirred up tremendous interest in the lay and technical press. Details of the first Q/VK contact have already been published in this journal, but it is interesting to place on record Miss Nelly Corry's (G2YL) feat which took place on October 27th.

Beginning with a QSO at 0900 G.M.T. with VU2LJ, G2YL proceeded in six hours twenty minutes to work stations in another five continents. In working VU2LJ she qualified for the first British 28 m.c. contacts W.B.E.

2. Entries for the international 28 m.c. contests have now closed, and the results will be made known early in January. All VK and ZL entrants are thanked for their support.

3. The attention of readers is drawn to the 3.5 m.c. test being organised by the R.S.G.B. during January for the purpose of contacting VK stations.

A special test will be held on January 18th-19th and 25th-26th, between the hours of 1800-2000 G.M.T., and will be announced in the T. and R. Bulletin. Owing to the unsuitable times arranged for the W/G trans-oceanic tests in December on 3.5 m.c., contacts with VK will be very improbable, and this has been arranged to give the 3.5 m.c. band a real try-out.

4. The rules for the 1936 B.E.R.U. contest have been circulated with the November "T. and R. Bulletin."

The awards committee trust that the new methods of scoring will prove in every way satisfactory.

The Secretary, W.I.A., Federal Headquarters, Box 2127L, G.P.O., Sydney.

Dear Sir,—I am instructed by the members of this Division to write, drawing attention of all amateurs and deploring the prevalence of phone stations on the 40 meter band after dark.

The Eastern States are in particular heavy offenders in this regard, and some of them with carriers of doubtful stability are taking more than their share of the band.

Members in this State are experiencing considerable difficulty in maintaining skeds through heavy phone QRM. What must the position be like in VK2, 3, 4 and 5?

Perhaps at the next Convention of the W.I.A. this matter could be discussed and arrangements made to curtail unnecessary interference with CW signals.

Yours faithfully,

CHAS. QUIN,
Hon. Secretary.

162 Subiaco Road, Subiaco, W.A.
22nd November, 1935.

Unfinancial members of the B.E.R.U., who are members of the W.I.A. or N.Z.A.R.T., can obtain entry forms from their divisional representatives.

5. With the near approach of the festive season the president, council and headquarters staff of the R.S.G.B. send cordial greetings for Christmas and the New Year.

6. Details of the R.S.G.B. international 28 m.c. test, to start on January 1st and continue for twelve months, have been forwarded to the W.I.A. The rules are the same as last test, except that Rule 6 has been omitted.

The R.E.P. has published in their magazine, "QSL," the following official list of French Colonial prefixes:—

F3, F8.—France.
 FA3, FA8.—Algeria.
 FB8.—Madagascar.
 FD8.—Togo.
 FE8.—Cameroons.
 FF8.—French West Africa.
 FG8.—Guadeloupe.
 FI8.—Indo-China.
 FK8.—New Caledonia.
 FL8.—Somali Coast.
 FM8.—Martinique.
 FN8.—French India.
 FO8.—Oceania.
 FP8.—St. Pierre and Miquelon.
 FQ8.—French Equatorial Africa.
 FR8.—Reunion.
 FT4.—Tunisia.
 FU8.—New Hebrides.
 FY8.—Guiana.
 CN8.—Morocco.

—By courtesy VK3RX.

R.A.A.F. Wireless Reserve Notes

Federal Notes by the O.C. (1A1-3M1).

R.A.A.F. WIRELESS RESERVE V.M.C.
NOTES.

A vast amount of hard work is being put into a standard and systematic training procedure for 1936. Our membership is rapidly growing now and the work is getting too big for the energetic D.C's., consequently much of the exercising should be left to the S.L's. However, there is only one way to teach procedure, and that is from a standard training manual showing many examples of each section therein and details on the conducting of the exercises. Incorrect teaching might lead to serious misunderstandings of the procedure. With this scheme in mind, it is hoped that a complete manual of this nature could be compiled to cover the four years of a member's enrolment. By the time he is through there should be little that he will not know about procedure. This idea has many faults, and a special meeting of the Staff Officer for Signals, the Director of Communications and the Deputy Director of Communications will be held during the holidays to survey the whole reserve training.

Exercises are greatly handicapped just now in all districts owing to the unfavourable conditions on the 30-metre band. There is a general rush to H.Q. for allocation of a frequency around the 40-metre band to overcome the trouble. Unfortunately, only three sections have been provided on this frequency in the crystal allocations, and they include one in VMD, VME and VMF. However, a recommendation has been made to the Air Board for at least two more similar frequencies and crystals to go with them. We shall see.

Arrangements are being made for a monthly "Demonstrations of Traffic Handling" by several of the permanent Air Force stations for the edification of Reserve members. This should prove very interesting indeed. The idea is that two, or maybe more, squadrons will exchange traffic with one another for a period of an hour or so, at a suitable time, and on a suitable frequency to which members would listen-in. Logs would be filled in as usual, and perhaps an award could be made for the most accurate of those returned to H.Q. Simultaneous transmission of these stations could be made on three frequencies, so as to completely cover the Commonwealth, and all squadron stations would work on the same frequencies, thereby eliminating constant tuning of the receiver. Full particulars of this exhibition will probably be circularised to all active members by post.

The Air Board desires me to convey seasonal greetings to all members and its hopes for the continuance of the Reserve's excellent work done in 1935.

The end of a year and the dawning of a new one are usually times of looking back and of looking forward. In VMC we look back on a thoroughly enjoyable year together in which our old friendships have been strengthened and many new ones formed. Most of our newer members now handle their traffic on schedule like our "veterans," and we look to them, as well as to the old-timers, to help the newest members over the first few hurdles of their Reserve training. We are looking forward to 1936 with the hope that it will be the best and most enjoyable year we have yet had, with all sections fully active and the arrival of our new crystals training will be able to go ahead in a way never before possible.

We are going to run a number of field exercises next year, using portable gear as training for any emergency. In these exercises each station will have three or four members grouped there, and will have to run a complete signal office. Our metropolitan field stations will also be linked with five-metre phones. The organisation of preliminary details for these exercises is taking shape, and we should have some thoroughly interesting week-ends' work ahead.

Conditions have been very bad on 3.5 m.c. during the last six weeks, and on occasions it has been impossible to copy some stations. Strangely enough, Shepparton always seems to be the town most seriously affected by a spell of bad conditions, with Merbein running a close second. During this last bad period it has been practically impossible to copy the Shepparton men. However, we can look for improving conditions shortly.

Our new Section leaders take over on 5th January, 1936, and we wish them the best of luck. At the same time, the men just passing out of these positions have my congratulations and sincerest thanks for their hard, enthusiastic work during their term of office.

3A5, 3B3, 3C3 and 3D4 resume their normal places in their Sections, knowing they have done a hard job well.

3C3 has been doing a lot of work on his new portable transmitter, and his advice should be invaluable to others who do not know the pitfalls in portable design, but who will be designing outfits for our exercises.

3B1, we understand, is back from his last country trip, but we have not heard from him to date. We are all interested to know whether to blame pressure of work or conditions for not hearing the signals of his portable while he was away, as it was working beautifully before he left.

3Z1 is in the midst of building a "Hestet" (or what have you?), for 14 m.c. and 28 m.c. operation, in the coming BERU Contest.

3Z2 seems to eat, drink and sleep 28 m.c. He certainly has put up a wonderful record with the Europeans.

3A6 has been furthering his experiments on 60 m.c., and has been putting good 'phone across Shepparton to SRS.

Bill Murden (ex-3AC) has been transferred to Tasmania, so we should shortly be hearing him operating under a VK7 call.

A very Happy and Prosperous New Year to all VMC members, and I know VMC joins with me in wishing all other districts and our O.C. a Happy New Year also. May 1936 be the finest and most progressive year in the W.I.T. Section's history.

SECOND DISTRICT'S NOTES.

By 2A1.

Apart from the usual "X's" on 80 metres, things generally have been quiet on this sector for the past month, and there really isn't much about which one could write.

The D.C. tells me that enquiries are constantly coming in from prospective members, and things look as though he is going to have quite a busy time keeping us all on the move. He also tells me that he paid another visit to Richmond to further iron out the way to co-operation with the R.A.A.F. station there.

While on the subject of traffic, I would like to remind all (apelt "ALL") Second District men that their traffic returns must be handed in to me immediately at the close of the period, otherwise it becomes impossible for me to get them to Melbourne in time for publication.

Brief descriptions of Reserve stations in this area might well furnish the subject matter of relayed messages to me on Sunday nights, thus making it possible for each of us to get to know what the other fellow is using between the key and the aerial.

Lastly, it will no doubt be a constant source of delight to members in this district to know that we have petitioned the P.M.G.'s. Department direct to have the static interference on 80 metres removed as from 30th February, 1936. Till then cheerio and the best of luck.

TRAFFIC RETURNS FOR MONTH.

2A1.—Received 3, 75 words; sent 8, 152 words; total 11, 227 words.

2A2.—Received 21, 441 words; sent 15, 418 words; total 36, 859 words.

2A3, 2A4 and 2A5 not to hand.

2A6.—Received 6, 355 words; sent 7, 181 words; total 13, 536 words.

2D1.—Received 10, 993 words; sent 5, 190 words; total 15, 1183 words.

R.A.A.F. WIRELESS RESERVE.

By 6Z1.

It is regretted that last month's issue of our magazine did not contain notes from VMF to enable this district to express its seasonal greetings. The link with VMC, namely, 6A2 (good old Joe!), broke somewhere. Whether it is skip or our friend is off the air is not known. However, as this should appear in the first 1936 issue, this district takes the

opportunity of wishing all reservists a Happy and Prosperous New Year. Better late than never.

The final sentence in the last paragraph is a phrase which could be applied to watchkeepers in VMC. Still, we won't delve into domestic trivialities during the festive season, but dwell upon the bright side. News comes through to-day that 6Z2 is making a rapid recovery from a severe attack of gastric 'flu, and so very shortly we shall hear once again Neil's sweet voice calling "All stations" (not CQ, mark you—that is not done in Hollywood, W.A.). 6A2 is studying industriously for the next first-grade commercial. If there is anybody we would like to see possess such a ticket, it is Jack, who is one of the finest operators ever born in Ham radio in VMC. Good luck, 6A2!

The time comes for us to express a few words of sympathy. These are directed to 6B1. Poor old Jim has been having a terrible time with combatting interference caused by electrical machinery. Seems to be refrigerators cropping up in every house and shop around 6B1, and with D.C. mains we shall leave the result to your imagination. Jim has been devoting his cipher coppers to buying suppressor condensers lately, whilst irate owners of B.C. sets abuse the innocent Jim as being the cause of the foreign noises in their sets.

Skip has put us out of touch with 6A3. Bob has been trying hard to hear 6Z1 on 7317 k.c. during Sundays' watches, but with no success so far. His enthusiasm is not damped, all the same.

Electronic

Communications Ltd.

With eight years in the experimental game, and four years in the broadcasting industry, Allen Fairnall, of VK2KB, figures he knows what the boys want, and has set out to see that they get it. The real amateur apparatus and real "ham" tubes will be found listed in the advertisement of "Electronic Communications Ltd." in this issue.

Traveltone Radio . . .

Traveltone Radio of 367 Bourke St. Melbourne, has a remarkably fine range of secondhand instruments which are of interest to Hams. They include Ferranti wall meters and Heavy Duty car transformers. The prices are practically half of the actual prices charged usually and everything is good as new.

Federal Headquarters

By 2HZ.

One of the biggest problems that confronts any W.I.A. Council is that of affording the country members of the Institute the greatest service that can be rendered.

Following on a Zone Questionnaire which was circulated some months ago, a special sub-committee was appointed to go fully into the problem of supplying the country members the greatest return for their subscriptions and support.

The following are the major recommendations back to the State Divisional Council:—

(1) That all lectures delivered at general meetings be published in "Amateur Radio."

(2) That cards be sent to all country members monthly, and if cards are not available a suitable notice to that effect.

(3) That a Sydney central station be established for operation on telephony and supply publicity to country and to schedule Zone Officers at regular intervals.

(4) The number of Zones be reduced from eight to five, and that Zone Notes be more to the point.

(5) That a country delegate be appointed to Council, and a booklet be published covering the activities of the Institute.

The proposed phone-CW channels were the subject of an impromptu debate at the last technical meeting, and it was felt that, while there were minor obstacles in the way, the proposal was an extremely sane one, and should go far in eliminating much of the QRM troubles that are so prevalent to-day. The matter, however, will be discussed fully at the November general meeting.

The 28 m.c. bonus rules of the VK-ZL contest were the centre of discussion at recent State and Council meetings, and it was decided to send a letter to the Contest Committee expressing this Division's views on the matter.

(If Item 1 is passed the technical editor won't be sorry.—Ed.)

Federal and Victorian Q.S.L. Bureau

(By VK2RJ, R. E. Jones, Federal QSL Manager.)

George Bridges, VR1AN (ex VP1AN), on leave from Ocean Island, recently spent a few weeks with his folk in Melbourne. What prevented you looking up the boys, George?

The recent wall from KA published in this column regarding the lack of QSL's from VK was productive of great mirth in Tasmania, where the KA's name is mud from a QSL viewpoint. One VK7 rejoices at receiving two cards from KA out of 12 sent.

Wanted urgently by this Bureau, the full QRA of CR8AA. Will someone please oblige?

Things still seem to be rather unsettled in Spain, as again there are two rival societies, each claiming to be the national organisation. Political considerations seem to determine the membership of each society.

"Radio QRA," the journal of one of the rival Spanish organisations, has arranged an international contest for transmitters and receivers. The contest consists of the exchange of a five-letter code group. However, following the usual procedure of European societies, no notification of the contest was received until it was half over.

The half-yearly clean-up of unclaimed cards will commence early in the new year. Cards listed in these notes in the January "Amateur Radio" will be consigned to the flames unless claimed by January 31st.

Cards are on hand at the Bureau, 23 Landale Street, Box Hill, for the following Victorian stations:—SAI, AT, AX, AY, BD, BE, BJ, BK, BL, BS, BX, CA, CK, CL, CW, EW, FC, FG, FL, FN, FW, FM, FH, GB, GU, GV, GW, HE, HH, IL, JC, HJ, JL, JK, JR, JV, KA, KB, KD, KI, KG, KK, KM, KV, KT, KW, LE, LF, LM, LP, LT, LY, LZ, NA, NG, NR, OU, OZ, PH, PM, PN, PY, QY, QL, QX, RE, RW, SP, TC, TG, TV, UF, UR, UW, UX, WC, WE, WH, WN, WO, WX, XK, XU, XZ, YF, YR, ZA, ZB, ZK, ZL, ZO, ZW.

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Amateur Radio

Divisional Notes

N.S.W. Division

The W.I.A. standard frequency skeds from VK2OC are still proving a success, and quite a large number of amateurs are making use of the Them. They are still being continued on 7000 k.c. each Sunday from 10 a.m. till 10.30 a.m. standard frequency, and from 10.30 a.m. till 11 a.m. on frequency checks. After VK2OC has concluded the standard transmission at 10.30 a.m., call him and he will be pleased to supply frequency checks.

The State Council has been unlucky to lose the services of E. Colyer (VK2EL), who resigned owing to pressure of business. VK2EL was a very ardent worker in the Institute's interests, and he will be greatly missed. In amateur radio work there always seems to be a point when the hobby interferes with one's work. Although "Ham Radio" may be the greatest and finest hobby in the world, the wise are prepared to let it slide.

VS2AC (Mr. Wyld, of the Post and Telegraph Department of Malaya) is at present holidaying in Sydney, and lectured at the December meeting of the N.S.W. Division. The lecture proved of great interest and provided many tales of radio in the tropics.

The membership is still steadily increasing and averages up to six and seven a month, and the results are very pleasing. In the near future a State-wide publicity campaign is to be started. A circular will be sent to all experimenters, together with suitable publicity in the press. The ham who is just starting in the game has often a misconstrued idea of amateur organisations and their functions, so an endeavour will be made to rectify any wrong impressions.

The proposed 'phone and C.W. channels are causing no end of comment in this State, and the November meeting was the centre of some ardent debating. However, during the next few days the result of the ballot should be to hand and the final decision be made.

ZONE 1 NOTES.

This month conditions have been rather changeable here; 40 metres not much good most of the time except for locals. On many occasions VK signals were still romping in at midnight and very little DX heard. During the few cool spells things were fair. Generally 20M has been good. Most of the gang have been concentrating on 20, and, believe me, that only half describes it. QRM max, plus! HI!

OJ is back from his holidays in VIM, and was a ball of energy on 20 for the first week, but has settled down again and rebuilding. Going to put in another tube, a 53, on 20, as he is not getting out too well. Could only W.A.C. in about 1½ hours one evening. Finney wasting all that time, Noel O.B. HI! Is taking out the resonant filter as it seems to be causing paraffins on 20. Less QRM for the local gang, too. HI!

XI on 20, with a very pretty note. Says he is not using a Ford coil for his power

supply! Oh, yeah! Getting out well, though, and QSO'd D and got R max from W. Vy. fb. Harry ob.

BU very busy on 40 and having many fb. QSO 2' with the gang when not learning to play that jazz drum. Hope u don't put it fore om hi. Still QRP 20, not much DX.

QD now out of the doctor's hands and looking quite fat on it. Hasn't much time for QSO's as is busy studying. We know OM but what?

QE getting out well all around using a Zepp, and has sum vy. fb. DX. Was lucky enough to have the 20 band to himself one good night and QSO'd about half a dozen Europeans, including the GYI that WAC on ten recently. Now wants South America for W.A.C. himself. Reports hearing a pirate with 3EG's call. Also says IG has a Ford coil! Nasty man!

NORTH SHORE ZONE NOTES.

By VK3VQ.

Conditions on the more prominent frequencies have remained practically unchanged during the past month, the only noticeable difference being the ever-increasing additions to the static bogey. On 7 m.c. the die-hards struggle through the QRN to work elusive Europeans in the late afternoons, and complete the agony by contacting Yanks and Japs later in the evening. 14 m.c. still is an attractive band, as Europeans appear from 1400 until 1800 E.S.T., and also round 2300 E.S.T. This location appears utterly hopeless as regards DX communication on 23 m.c., but in Crows Nest the evergreen 2LZ continues to contact overseas stations. The right bait for working South America has so far not been determined. 6 m.c. continues to hold up for numerous fone stations, but no startling developments have so far appeared from that direction.

2DR is believed to be still in the throes of a YL, while 2AE in the same direction is QRL study. 2ZH, of Roseville, has pep behind his signal and seems to make the most of it. 2SV and 2VM seem similarly troubled to 2DR, while the latter is even to the stage where the YL recently said "Yes." Congrats! A nice portable has been installed by 2VG in his sailing skiff. 2HA and 2TU are both intent on fone with varying results. 2VE will be trit-tetting with a 59 and 210 final, while 2VF makes rare appearances. 2EP tries to tame another xtal rig, and his neighbor, 2WW, is QRL study. Complaints are made that 2LZ has removed the liquid refreshments from his shack and signed the pledge. 2HY has now five continents up on 28 m.c. 2BJ plans a bigger and better Radio Club, but rather hush-hush up till the present. An 830 B has replaced the blown 242A at 2HZ with better results. 2JE, of Cremorne, uses quite fair telephony on 7 m.c., and 2VN of the same suburb. 2 stages add additional countries at times. 2FM is on 14 m.c. a lot, with no regard for QRP. 2PY and 5PK have a clear xtal sig. on both 14 and 7 m.c. A new xtal rig at 2PV should improve DX, and it's all set to start

when the "Uni" exams are over. 2HI has interest in a greengrocery business. Of the Manly gang 2HF has been mainly on 28 m.c.—73.

WESTERN SUBURBS NOTES.

By ZO2MY.

VK2PT on holidays and spending most of them rebuilding his rig. Why, goodness knows! It's easily the best built rig in the district now.

VK2FD also been QRL rebuilding, principally concentrating on fone, and has been receiving FB reports on transmission from ZL.

VK2EL.—Congratulations, Eric OB, on at last landing that elusive LU. The secret of making 'em QSL, OM, is to send 'em a card or two cards every mail till they QSL to stop you. Guaranteed to work.

VK2CW.—Don't know whether he is a Yank or not, but he appears to have borrowed the rock-crusher that KA1HR used to have. What are you using, OM?

VK2NH was kind enough to forward me some data re HA1KG, including his QRA as rig, also that he would appreciate some of the VK gang reciprocating his QSL. What about it, gang? Sorry, 2NH. I put it all in last month's notes, which appear to have vanished the same as the previous month's.

VK2RY caught the model aeroplane craze and now busily engaged in designing one for himself. Did hear that he swiped his 40-foot pole to make the propeller, but don't think it's right.

Anyone wanting a South African for WAC will find that FB8C Madagascar is fairly easy to raise from midnight onwards. Has good DC note on about 7300 k.c. CR7MB is another that can be raised about same time as same frequency.

1G also among and assisting the QRM on 20 and as with QE want that elusive South America. Keen rivalry between QE as 1G for DX as W.A.C. and two lovely pots for the one who QSO's South America first. (No more entrants wanted. HI!) As only about 200 yards separates the two stations, QRM is about 100 per cent., and looks as though one will have to die before the other gets through. HI! 1G using a full wave Hertz fed at $\frac{1}{4}$ wave with twisted m. imp feeders and gud for DX.

3EG was visited by OJ and Y1, who gave his gear the once over on Sunday, 8th. No startling news, though has had a few storms there, but no damage done.

2AP visited Albury one week-end and met some of the boys. Went to Buffalo with Y1 and had an fb. trip, returning to spend the evening with OJ.

Well, guess this about cleans the slate, so 73 as cheerio for the present 2C's.

VK2ZR been experimenting with antennas, and gave a lecture on same at the last W.I.A. meeting. Jack sure knows his onions and gets out FB with those 48's. Getting R7 from G is real DX. But I'm still unconvinced re my antenna, Jack.

VK2BX.—Bert did a spot of DX during the test on 20 m.x., his first seven QSO's being in seven countries. That's the way to pick 'em. Were they harmonics or undertones, Bert?

VK2CG noticed wending his way to church t'other Sunday morn, perhaps to get local atmosphere. 2CG is the official

W.I.A. rep. on the Inland Mission Board. Bill Moore says that if 2CG attends any conferences it will be necessary to come attired in a nulla nulla and yam stick.

VK2FO still appears to be QRL tennis, jazz, etc., although occasionally heard on fone on 40 m.x. Been trying new condenser mike and says FB.

VK2JT on 20 mostly DX as occasional fone appears to be suffering from feed-back occasionally, although quality good here.

VK2DW divides his time between 5 and 40. Mostly on fone as one most improved fone stations on band appears to have at last eliminated most of bad AC carrier hum.

VK2SK, DX hunter on 20, possesses very FB panel as rack outfit as makes good use of it, although keying sounds bit queer here. What system using there OM?

VK2XU.—Sounds like old times to go across the band and hear every second DX station calling 2XU. Gilbert must have found another good location.

Occasionally we still hear of some energetic ham doing real QRP DX. VK5FBX, Frank Branson, of Wilmington, South Australia, was QSO a W6 with two watts on 40 m.x. as got R6. Have a go at it, gang. Afraid I wouldn't even know whether my haywire was oscillating around that figure. Another QRP merchant is VK6ZZ, who uses about three watts and comes in R6 in VK2. Perhaps the secret is that they haven't got to penetrate that Western Suburbs QRM band.

VK2FT, of Paddington, puts out nice fone on 40, being QSA 5 R6 out here, but carrier could be improved a bit, there being fair amount of AC in it.

VK2IU, of Burwood, mostly 40 m.x. fone. Quality quite fair.

QRG??.—Despite the advent of a FB frequency check and station at 30C, some of the local lads, lds and pirates still continue to chirp CQ, blissfully ignorant of their frequency.

VK2QM, of Coogee, puts out nice sig. Uses 3-stage rig 59 CO 46 and 46 in PP and comes in very solid in Western Suburbs.

VK2MQ has rig all ready, including SSS, but finding trouble in fitting an antenna into his backyard, so decided try Collins system.

VK2PG.—Ronnie still QRL building, and says hopes to be on the air for Christmas with 8-stage xtal rig. We will miss that old toaster trannie of urs, Ron.

VK2GR seldom heard now. What's the trouble, Alec? Occasionally on 20 m.x. on duplex fone with 2 MN, but the DX bug has died altogether.

VK2VG trying his hand with portable equipment and gets out very FB indeed. From here there was no noticeable difference 'tween that 2 watts, Rex, as the 211.

VK2MY proud possessor of an antenna which all the experts except 2NO assured me was not so good. Spent last W.I.A. night listening to reasons why it was no good, then went home and in 5 cqs worked m.x. FB8, CR8, CR7 and G6. Wonder where I'd got if I could fix it properly?

Would very much appreciate any notes from Western Suburbs hams re their doings, same to arrive here at 2MY before 17th of each month.

LAKEMBA RADIO CLUB—TRILE.

By 2DL.

At a recent meeting of the above club considerable discussion was entered into with regard to the phone-CW question, and as an outcome a motion was passed to the effect that "all transmitting members of the Lakemba Radio Club pay particular attention to the adjustment of their apparatus, obtaining maximum efficiency in order that the problem of interference may be reduced to a minimum."

Lectures for the past two meetings have included "Directional Aerials" by Mr. Pinnell (2ZR), and "Modulation," by Mr. Freeman (2AS). It was with regret that the resignation of the secretary, 2XZ, was accepted. 2XZ is expecting to be transferred to a ship operator's position at any time. Mr. Williams (2XZ) has been elected secretary. The latest transmitting members are 2XU, 2VA, 2BO and 2YG, while 2WB has been nominated as a prospective new member.

2XZ and 2OD report that a "pirate" is using their call signs on 5 and 20 m.x. respectively. 2FD and 2XW are both rebuilding; both rigs certainly look very professional. 2IC and 2OW seem to be working all the DX, 2OW being now WAC. 2OD recently delivered a lecture to New Zealand lecturers on 5 metres, relayed by 2DL on 41 metres. New Zealanders were quite delighted to hear a 5 m.x. station from Australia, even though it was relayed.

The Lakemba Radio Club extends to all the very best wishes for a prosperous New Year.

NEWCASTLE CLUB NOTES.

By 2RF.

NEXT YEAR'S HAMFEST.

Hams generally will be pleased to know that at a recent club meeting it was decided that another hamfest will be held next year on the first week-end of May. Organisation has already been begun, and some new ideas are being put forward.

The club's DX contest over a period of three months has just concluded, and in the closing stages resolved itself into a neck and neck struggle between 2MT and 2ZC, the former eventually winning. Final points were as follows:—2MT, 357; 2ZC, 312; 2DG, 280; 2RF, 174; 2UF, 162; 2KB, 141; 2ZW, 114. 2MT, Chas. Hedley, in annexing the local DX championship, showed what could be done on 20 m.x. with comparatively low power. The rig used consists of 59 CO, 46 dblr., and 45 PA, the receiver being 3 tube TRF. Here are some of the countries worked by the winner, who will hold the N.A.R.C. shield:—G, F8, OK, NY, ON, K4, K5, D4, OE, YR, OH, VP5, LY, TI, ES, SM, HC, CX, YI, FB3, EA, OA, OZ, PAO, etc. Charlie is to be congratulated on this very fine work.

The contest was such a success and was so interesting throughout, that the example could well be followed by other clubs. The idea is for each ham to submit the best three DX stations he works each week. A scale of DX countries, which could be forwarded to anyone interested, allocating points from one to fifteen. For example, W1, 2, 3 and 4, 2 points; other W stations, 3 points; PK and K6, 4; J, KA and VS8, 5; XU and VE, 7, and so on up to stations worth

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15 points, the latter being regarded as almost unworkable.

The points for stations participating are marked up in the club-room each week, and the leader at the end of three months wins. It was surprising just how much interest the contest created, and members are eagerly awaiting the next one after a month's spell.

Several local hams have come to the conclusion that superhets are not so good without a xtal filter, and it is on the cards that a few supers will soon turn into TRF affairs.

ZUF has been getting good results using a 53 as CO, and is occasionally heard on a bug. For heaven's sake, keep the weights on, Frank! Hi!

Congratulations to Bob Best, who has just passed the A.O.P.C. Bob will be a welcome addition to the local hams.

Victorian Division

PHONE SECTION NOTES.

By VK3DH.

At the Phone meeting on November 26th, as usual a good attendance was recorded. One or two lively discussions took place, keeping general interest going.

Members better known as 'EL, 'OV and 'SB suggested that all stations should take only one session, going right through the list; then, when all had taken their choice, spare sessions and frequencies to be divided between stations, going through the list again, according to the order of merit. This might, in practice, mean that one station would have to take two crystals. Unfortunately, due to the limitations of our stock of crystals, this could not be arranged.

Mainly due to lack of support this suggestion did not get any further. Even if support had been there the thing was not possible.

A further discussion was introduced by 8OV, who intimated that in his opinion the Allocations Committee should be composed of members who were actively engaged in transmissions, since they must have a better working knowledge of the requirements of technically good transmissions. In keeping with the above remarks, 'OV gave notice of motion that he intended to move that the motion on the books stating "The Allocations Committee be composed only of full members not actively engaged in transmissions" be rescinded.

Further on this subject 3PA and 3FL had another idea. They were in favor of retaining the present system of election of the Allocations Committee, but that a Technical Committee be elected to advise members on matters pertaining to the technicalities of transmission.

To explain the motive of this idea, the Allocations Committee have at present a full time job, since each member has to listen to each station for a fairly long minimum period, in order to allot the marks for the various details of a transmission on which points have to be recorded.

On several occasions the committee has expressed very clearly the difficulties attached to the making of a detailed report on any number of stations.

This explains their inability to answer a man who asks "What's wrong with my transmission?" when he happens to suddenly score only a few marks and gets a poor position on the order of merit. Well now, the idea of the Technical Committee is to do this work of criticising a transmission in a way which ought to be more satisfactory to the station being observed, because this Technical Committee is composed of members actively engaged in transmissions, and who, in the opinion of PA and FL, ought to be in a better position to judge technically a transmission, and diagnose a fault over the air, than the Allocations Committee.

The committee was elected as set out here, and their services are available on the nights mentioned:—

Tuesday.—3OY, W 5494.
Wednesday.—8CR, U 7511.
Thursday.—3JB, X 4285.
Friday.—3PA, JW 3921.
Saturday.—3FL, W 3773.
Sunday.—3DH, X 3735.

The idea is that, if and when any station operator has made some changes, or wishes to make some tests, he phones the particular member of the Technical Committee who happens to be on the list as available that night, and the latter proceeds to listen and report either by phone or radio on the various tests, etc.

According to the sponsors of this scheme, an operator would then have a good idea of what was going on, and would know what to expect in the way of points scored in the order of merit, according to whether the Technical Committee's report was that the transmission was good or bad. If the latter condition happened to be the case, the operator would still perhaps have a chance to rectify faults before the following Sunday, when the allocation of points takes place. —73.

KEY SECTION NOTES.

By C. WOODWARD, VK3YO.

The December meeting of the Section was really a combined general meeting, the Short Wave Group being in charge of arrangements.

After the Key Section business was concluded, a most interesting lecture was given by Mr. R. H. Doyle, of Messrs. Warburton, Frankl Ltd., on standards of frequency and frequency measurements.

His lecture was very well received, and the chairman endorsed the feeling of the large meeting when he said that it was one of the best lectures he had heard.

A notable presentation during the evening was made to the chairman of the Section, VK3MR. The presentation was made by the QSL manager, VK3RJ, on behalf of the D.A.S.D. reporting stations. As a mark of appreciation for the manner in which 3MR always acknowledges German reports, they sent him as a Christmas present a nice big Hamburger sausage.

3DP has shifted to the "Hamburg" area, and soon will be hot on the scent of 3MR. (This has nothing to do with 3MR's sausage.)

3YP completed 150 DX QSO's on 28 m.c. during the month of November.

A 4-tube super is actually working on 56 m.c. at 3DM.

3RX called five continents in two hours on 14 m.c. one night last month, and hooked them all.

By the way, 3RX was responsible for the big scoop in November A.R. In case someone missed it, the subject was the wedding of 3CX.

Talking of 3CX, the newly-wed says there is no room for an antenna at his flat, so he is going to stick to 5 metres. (N.B.—He hasn't been on 5 yet.)

3UW worked his first W on 28 m.c. during November, whilst 3XP is considering getting on the same band and has installed a 53 as a C.O. and doubler.

3KE is now looking for a hum in his receiver. (No, it is nothing to do with 3MR's sausage.)

Our popular president, 3WG, is holidaying in the hills, and 3WY is keeping the W.I.A. on its feet whilst Bill is away.

3YK is inactive, being more concerned with yachting.

A kangaroo invaded the garden of 3ES recently and nibbled his guy wires. It is strongly suspected that the 'roo was lured to the spot by the sound of the bagpipes which 3ES delights in playing.

3OX, one of the well-known looker looker Cookies, has a 53 exciter feeding two type 10's and grid modulated. Gets his greatest kick from 40-metre phone. It's nothing to the kick he might get if some of the anti-fone gang gets him first.

The matter of fitting the generator to supers is easily done if one follows the "system" used by 3RX. He has regeneration in every tube except the P.A. and rectifier.

3OC is getting in a supply of bottle openers and bung starters for use at Christmas.

It is reported that a certain W2 uses an 800 driving a 150 T, followed by four 150 T's in P.P. parallel 6 k.w. input. Yes, we heard him.

VU2CQ does not appear to be able to read any more than calls and reports. This is vouched for by 3MR, 3RX, 6FO and others, including W's.

Just to show that marriage has no ill effects on him, 3CX has again taken up the pen in the cause of amateur radio and better signals.

As he was returning home from toll the other evening he saw a well-known ham, a trifle the worse for wear, standing in front of a large jockey scale and asking the world, "How many mills is she drawing now, OMT?" No, that was not 3RX.

That fella 3RX has gotten bitten by the fone bug and makes noises nearly as bad as 3CX's fone on the 14 m.c. band, and so that he can be heard in two places he has borrowed CX's xtal and finds it better than his own, so 3CX is wondering if he will ever get his xtal back.

In regard to the "secret" wedding of CX, all he can say is that hams don't read the news, as the event was published in all the leading papers for months before. The sad-faced guy behind CX was not his tailor or pa-in-law, but he WAS the best man. Not now, though, as he got himself engaged last week. It's the heat over here in VIM.

On 20 metre band the low-powered stations continue to show the way to the high-powered stations. Just imagine a signal like 2XU puts out all coming from 10 watts. There must be something in

his double wave antenna and 75-foot stick.

3CX tried phone (??) on 14 m.c. with the result that he has worked five continents on fone now, and all the short-wave listeners for miles round have headaches. New countries abound on 14 m.c., and 3CX has gotten his total to 82 now. 3RX is hot on his track with about 40, having got 17 of them in the past month. That is since he put up the same kinda antenna that 3CX is using.

3RX heard 3CX's fone and said, "I can do better than that," so he tried it, too. (I won't say what it sounded like first, except that he was so discouraged that he gave it up. But came back again and has now worked VS6 and VS7 on fone!)

3OP potters round on 3.5 m.c. and works Yanks, while 3GU works DX on 14 m.c., but with a signal that is about half a mile wide, and then some, even tho' T's.

3YO, 3OC, 3MR and 3RX run four-way QSO's on fone, much to the enjoyment of others who are trying to work DX on the same frequency, as YO and OC are on top of each other, and MR and RX are the same.

3CX has a new wonderful receiver—he can hear 3KE and 3RX on fone ALL OVER THE DIAL. Ain't that fine? Or is it?

Foreign fones like HI7G, HI5X, YN1OP, K4SA, etc., are only R9 on it, but 3KE and 3RX are twice as loud as that.

3OM has practically given up ham radio. He had to, as most of the hams in the district borrowed nearly all his gear, and that keeps him off the air.

3LQ got married and shifted into Gulchview, but he has not been on the air since. We don't know if it's the married life or the district in which he now lives.

3OI, is another ham that has just got himself engaged. S'certainly catching!

WESTERN DISTRICT NOTES.

By 3HG-3OW.

There seems to be very little activity in this district, mainly owing to most operators being busy with the harvest, etc. The 80 and 40 metre bands are practically useless at present, due to QRN and QRM, but 20 has been fairly good if one stays up late enough or rises early in the morning.

3HL active only on 80 metres on Sunday mornings for local QSO's and reserve work. Has joined in with the northern chain gang in their Sunday morning hook-ups. He recently erected a special 20 metre antenna for 3HM, but can't raise a thing with it. Thinks it is being affected by his own large 40-metre beam.

3NN, another of the northern gang, has greatly improved his phone with the aid of a Harlie mike and a 250.

3PG had the great misfortune to have his large beam antenna system wrecked in a recent heavy storm, so is inactive for the time being. Guess he will make up for it later, though.

3HG very inactive, due to pressure of work and lack of interest. The same can be said of 3OW.

3JE says he is coming on 200 metres.

3OS heard the other night working ZL on 80 phone. Evidently has his generator going at last.

South Australian Division

By Leith Cotton (VK5LG).

No news from the Camperdown, Colac or Warrnambool boys. Heard 3WW on 20 with a fairly rough note.

Special! 3FG "heard all continents" in three minutes, and wants to know of anyone who can beat this record.

The Queensland Division being settled in their new headquarters at Celtic Chambers, George street, Brisbane, for a month or so, things are running smoothly once more.

It was pleasing to note that we managed to bring home the Flak trophy once more in the face of strong opposition. We wish to thank all those who took part in the contest and helped to make it such a success. Here's hoping for another of the same nature!

Another matter of vital importance is the ballot on Phone Sub-divisions. We would like all members to give this matter their earnest consideration, as we feel sure it will do much to alleviate a lot of the hard feelings prevailing at the present moment between DX and phone men.

Conditions during the past few weeks have been rather patchy. QRN is playing merry hell on 7 m.c. during the evenings, and DX signals are hard to copy. But during the early hours of the morning, from 2 to 7 a.m., 7 m.c. is a DX paradise, Europe, Africa and Asia putting exceptionally fine signals into Brisbane. African fone has been heard R3 on speaker here. 14 m.c. is very patchy and DX very weak.

28 m.c. also rather patchy, but DX signals are very good when they come through. 7.30 a.m. is the best time for Yanks; they are putting R9 fone into VK4 at that hour. Europeans still consistent at 6 p.m. 2.5 m.c. now showing up, with a few European signals peaking at R4 about 5 a.m. We wish to congratulate 4EI upon his QSO's with G.

4RC blew his P.A. power trannie and is giving DX a chance to recuperate. Hard luck, Bob!

4EI smashing more records by his QSO's with Europe on 3.5 m.c. Fb, Ray!

4CR only heard on rare occasions. Clarrie is troubled with B.C.L. QRM!

4UU changed his QRA and has a swell location now. It took eight of the boys all Saturday afternoon to re-elect his 65-foot stick. What a job! Hope it never comes down again. Motto: Never change QRA!

4YA at Yangan puts a solid signal into VIB with his T.N.T. and 3 watts from "B" batts. Fb, OM!

4WT heard at odd times between fishing (?) (Booing!) expeditions and polishing his tank coils.

4JF has been QRL lately. His new QRA is not so hot apparently.

4EL has been heard a few times in VIB from his new QRA at Ayer, N.Q., using very QRP! Hope you are having some luck with it, Eric.

4LE still working plenty of DX with his 46 in T.P.T.G., and is now W.A.C. George cracked FB8C after many heartburns. Congrats, George!

4UR contemplating going xtal early in the new year. Fb, Jack, but get a rock well away from mine! I want some DX.

4US has been having a feast of Africans and Europeans in the early a.m. Fb, OM!

The monthly meeting of the Division took the form of a general discussion night, and among the subjects discussed was the proposed subdivision of the amateur frequencies. After many arguments for and against, the very representative gathering voted unanimously against the idea.

The Secretary read out the report of the Federal Executive, and, according to the story, great are the expectations thereof.

It was decided to leave the rules, etc., of the Centenary D.X. contest to the State Council to frame, but there will be no radical changes from the two preceding contests.

After distribution of QSL cards the meeting was closed and general ham-fest and rag-chews indulged in till a late hour.

I regret that my work calls me from Adelaide to Whyalla, so that I will miss the Christmas meeting of the Division, because from all accounts it will be a bumper affair.

Anyhow, although late, I take this opportunity of wishing each and every ham, OM or YL, the season's greetings, and may your D.X. never fail.

This being my last write-up as local reporter, I would thank all who have read these notes for their kindly help, criticism and advice, and if my successor has half as good a time as I have had, then he will not regret it.

However, I intend to still write scandal about the boys, so, as I will be listening, don't breathe your indiscretions over the air, as I thrive on radio "faux pas." Hi! And now for some scandal.

The Hi Fidelity King (5DC) graced the last meeting with his presence. Wish he'd brought his stoddioh. Hi!

Have you met 5DK yet? He QSL's.

5WK had a beaming smile on his frontispiece. Must have got on to some good D.X.

Somebody said 5MH was married, but Dick indignantly denied the rumour and said his hair was as curly as ever. Hi!

5KL refuses to enter his condenser mike in the gear contest. 'Fraid it will get pinched, Clarence?

5HD is collecting QSL's. Hi! He offered to swap three VK cards for one Yank or two ZL's for a G. Hi!

5GP sneaked off before I could interview him. Was it a YL that attracted you?

5ET.—Robert entered a very nice-looking Reize-type mike for the contest.

5CE.—Who said Charlie had lost all interest in cigars? However, he is never heard on the air now, so perhaps the cigs. have him beat.

What awful crime has 5JC committed? I overheard it said that lots of VK2's are after him. Hi!

5PS is a talkie operator, and has the low-down on Hi fidelity.

5MK runs a sked with ZU5AC. Holy Hamdom! What next will Jack do? Oh, yes, just to keep him occupied they

(Continued on page 28)

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Doings in the West

(By VK6LJ.)

Whew! It's hot! As I swelter and pick the deciding verdicts for the local lads, it feels like 300 degrees Centigrade. But, lo! 'Tis only 85 Fahrenheit. Summer is here at last, the birds twitter in the dusky twilight, the doves softly coo, and the DAM QRN has arrived! But now to return to Radio!

Did Daddy Xmas bring little Oigle that 50 watter? We don't know that, but we know that there will be a social outing to Penguin Island on January 19. This will be the only gathering of the Institute until the February meeting. We held an outing to the same place last year and it was QSC 5, so we are hoping for the same this year.

A Field Day was held last month in the form of a transmitter efficiency test, and was won by Jack, 6BB. This reminds that he promised an article for the magazine on "Music on a Beam of Light." Perhaps he will be energised when he sees this!

6AG gave a lecture at the December meeting on "Suppressor Grid Modulation Adapted to Portables," but it was poorly attended owing to the holidays. I noticed in the November issue, that for Mae West yarns, QSO 5LD or 5UK, but there is a ham in VK6 (a commercial traveller at that), who, I think, could beat 'em all! His guilty conscience will make him squirm now!

Well, now, the first call sign on the list is 6AA. Bert is heard on 14 m.c. and uses an 800 tube. 6AC down amongst the gins—doing service work—oh, yeah? 6AE breeds canaries in his transmitter. Say, om, have you tried putting salt on their tail? Hi! 6BB still rejoicing over his contest victory. And Bert, of 6BN, tears around in a P.M.G. van. 6CA has gone into recess as we never hear him. 6CB—say, OM, feeling guilty, yet? Hi! Let's go! 6CX thinking of other things just now aside from radio.

6CP was heard on 14 m.c., but don't think he did much. 6CY must be down on 56 m.c., as we haven't heard him lately. 6DH going away for Xmas and is another one we never hear. 6FG wants a rap on the knuckles with the Wouff Hong for not entering the ether. 6GM says he is going on 14 m.c. wid his fone. 6GW was away for a while on holidays but has returned to toil now. 6JE said he heard South Americans on the new receiver, but was not down on 14 m.c. with the transmitter so he didn't QSO any! 6JK is the sir-loin specialist. 6JS still on 200 metres and is another one who uses a type 800. 6JW QRL exams. 6KZ ventured on 14 m.c., but has a ripply note and not too good. 6LK sat for first-class last month and we wish him the best of luck. 6LJ busy thinking out these notes! 6LR only on the air very occasional. 6LY NEVER on the air. 6MN got work, and not on that much. Mostly on 14m.c. 6MW heard calling a long drawn out cq. The only thing, Bill, is plenty of patience. Hi! 6PK punches the key! But not on the air. 6NJ and 6RD a few more seldom heard. 6RW still maintains Sunday as RADIO Day! Hi! 6RL returns to Hamdon. Says he may be on the air. 6SA gone quiet since the contest. And, Bill, if 6WS cannot get going on 7mc as he would like it to, 6ZZ gso's the east quite good, and is heard quite regular.

You know there are a few more weapons than only the Woriff Hong, so if you lazy snoozers don't exterminate some ether, there will be great doings among the lads.

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(Continued from page 10)

of commercial occupancy. Done in black and gold, the pin is of $\frac{1}{2}$ inch diameter and bears the A.R.R.L. diamond. This attractive button, in League colors, will be given to amateurs who are doing things regularly in the survey. The new buttons will be carefully restricted to Cairo observers, who actually submit logs of value in connection with the survey, either direct to A.R.R.L. Headquarters, or through one of the group-centres conducting planned work in connection with the survey. Those who have already won the new League button through consistent surveying will be first to receive the emblems.

DO YOUR PART. Get lined up for survey work to-day if you have not already volunteered. Your acknowledgment card, and a word as to which range you can cover will bring you details . . . and the new League button when your logs in behalf of the cause have been forwarded.

W3FAR and ZS1H W.A.C. On "Ten."

Here's the latest dope from George Grammer, W1DF, on new ten-metre records. October 12 goes down in history as the day on which the first ten-metre WAC completed! W3FAR hooked J2CL at 5.40 p.m. est to climax a week of work in which the other five continents fell with no trouble at all. The second ten-metre WAC followed hard on the heels of the first, when ZS1H worked J2HJ at 0750 on October 13, only nine hours after W3FAR got his J! Bit of tough luck in this one, because ZS1H had heard a J two weeks before but had been unable to QSO. The morning he made it, J3FJ and VS6AH also were coming through on ten.

October Conditions: To any of the ten-metre gang in the eastern half of the country, at least, it hardly seems necessary to go into any details about conditions this past week or two. DX work has been the rule—and not only that, it's been pretty consistent. ZS1H has been covering most of the country like a tent every day during his operating period (11 a.m. to 1 p.m. est), most of the time with S7 to S9 signals. European signals have been piling in regularly around 8 to 9 a.m. est and again around noon practically every day since October 10. At the same time it has usually been possible to work W stations over 1500 miles away. South Americans continue consistent,

along with X1AY. VK's and ZL's seem to be utting in strong signals everywhere in the country except New England, where some first-class ear-straining has to be done to hear them at all. J's are getting through regularly in the West and have been heard by several 9's. W4AGP reports hearing both sides of a QSO between J3FJ and W7AVV. Knowing ten of old, we've daily been expecting a sudden zoom and out, but miraculously the DX keeps rolling in. We hope conditions on "ten" stay like this for a spell, and suggest that everybody in a position to do so give it a whirl and report DX heard and worked to A.R.R.L.

(Continued from page 24)

made him a councillor of the W.I.A. Congrats., O.M.

5LY, like the old owl, said nothing, but I bet he works a lot.

5HW is lecturer at the School of Mines in radio theory, and how that boy can lecture!

3XA.—Nuffin' doin'. Hi!

5RF is dead, but he won't lie down. Collin always bobs up when least expected.

5LD, our TFC manager, bewails the fact that he doesn't get enough work.

5ZX has more ideas than the proverbial dog has fleas, and then some. Hi!

5LP now walks about FB and hoorays.

5WW is the very able AOCF lecturer of the Division, and a pleased smile betokened some more successes in recent examinations.

5RH cropped up at the meeting and said how-do to the scribe.

5LG paid a visit to a ham's shack—5XA—and called CQ, but listened for 5LG calls instead of the right call. Hi! Hi!

5FW had his wrist in bandages after a call on XA's key. You can call or QSO by just blowing on Eric's (5FW) key. Hi! He said 5XA needed a sledge hammer. Hi!

(Continued from page 14)

Here's an excellent (?) example of the "ham spirit". G6LK was hearing VK2LZ for a couple of weeks before the first VK-G QSO took place, yet kept it all to himself instead of passing the news around to the other G 28 m.c. gang!

VK2BX having trouble due to bad shielding (crook QRA and how!). Have put up a new antenna as much in the clear as possible, which seems to be perking OK, although the feeders are long enough to take the R.F. to the DX without bothering to radiate it. Hi! It is a 14 m.c. half wave Zepp.

Compliments of the season and 73 for 1936 to all the gang de VK2BX.

R.A.A.F.W.R. Stations

2A2 (VK2XP).

As those who are acquainted with him know, 2A2 is a very energetic man, and here we may guess that he has not too much spare time to devote to anything in the nature of rag-chewing or DX.

He is, however, very well known to 2nd district Reservists as a first-class chap with a first-class fist, and last, but not least, an excellent signal.

He is located on a milk foundry or something at Wyong, about 60 miles airline from VIS, where such a thing as 240 volts A.C. is something of a prophecy—hence the rig.

TRANSMITTER.

Hartley, with crystal lock.

Motor Gen. Hand Gen. (magneto).

For high tension we have a hand generator made from a cream separator (driver) and generator giving 250v. and an M.G. giving 350v. to a 201A or 245 respectively.

I understand that when working the hard generator the perspiration is diverted to a water turbine, which automatically alters the radiation angle of the antenna to suit the Heaviside layer. The antenna is 133ft. long x 66ft. at far end, and 25ft. near end, with Zepp. feeders. Points East and West, with the high end to the west.

The receiver is a 3-tube Schnell, plug in coils, and covers 20—750 metres. It brings in European and Yankee signals at R6-7 on the speaker, which is good going.

Receiving aerial 66ft. vertical.

2A1 is building 47—46—pp. 410 for 7 and 14 mc., with about 40 watts to a 66ft. vertical aerial on a 90ft. stick. He tells me that this qro. rig is a necessity, because his average report from the U.S.A. men on 40mx. is only R8 when he uses 8 watts. Looks like being R40 with 40 watts, eh?

Now I'll tell you a secret. Look back a bit and notice that 40 metre vertical aerial $\frac{1}{2}$ wave above the ground. NOW! Sneak up to AWA and get two T250's and a 5000v. supply, then give him a go in the next dx contest. You'll need 'em.

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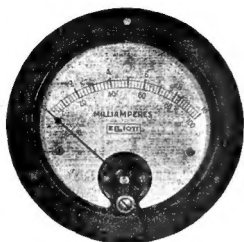
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